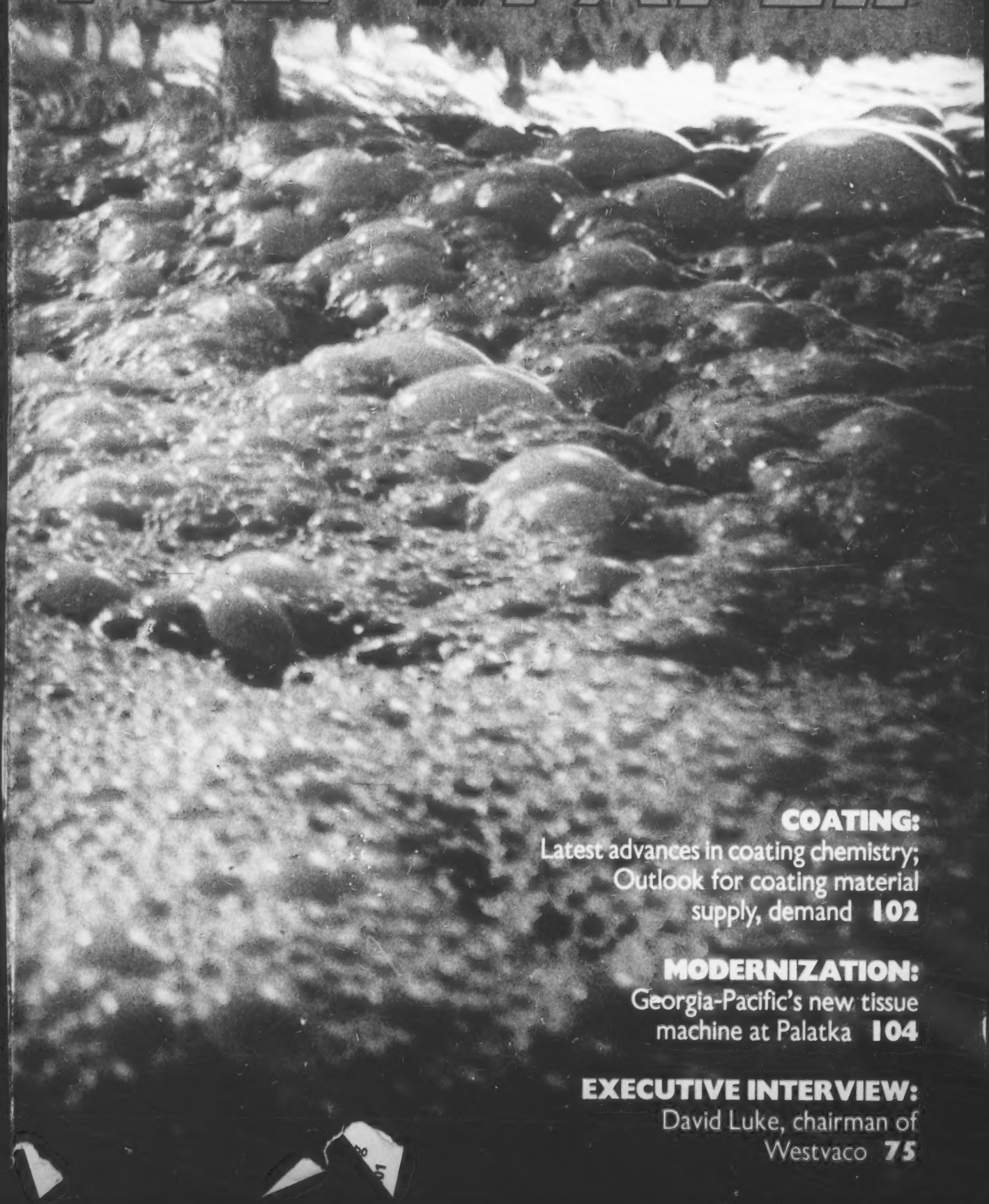
C3975-2
5/18/87

# PULP & PAPER

May 1987



**COATING:**
Latest advances in coating chemistry; Outlook for coating material supply, demand **102**

**MODERNIZATION:**
Georgia-Pacific's new tissue machine at Palatka **104**

**EXECUTIVE INTERVIEW:**
David Luke, chairman of Westvaco **75**

Volume 61
Number 5

# MAY

## FOCUS: COATING

**U.S. coated paper trends** 59
In a *P&P* interview, Gerald Hein, top industry consultant and Georgia Kaolin employee, discusses the future of domestic coated papers

**Binder insolubilization** 49
At TAPPI's 1986 Coating Conference, suppliers of various types of coatings discuss solutions to application of binder insolubilizers

**Coated paper outlook** 141
An overview of the U.S. paper industry's coated paper segment shows continued strong capacity growth through the end of the decade

**Coating, filler pigments** 102
Industry use of inorganic materials soars to record levels as production boom continues; product supplies and prices remain stable

**Unique coating material** 138
New hollow-core synthetic pigment is lightweight and efficient, improving gloss, smoothness, and other printability characteristics

## OTHER FEATURES

### PAPERMAKING

**Fractionation modeling** 131
During refining, models can predict resulting strength properties, freeness, flow rate, and other trends involving centrifugal cleaner use

### PULPING

**New washing technology** 61
Compact filters, horizontal washers, pressure diffusers are replacing the traditional vacuum filter for brownstock washing

**Rapid displacement heating** 93
Beloit's batch digester system uses heat recovery in the digester to cut cooking time and blowtank emissions at two large kraft pulp mills

### THE COVER

***Kaolin flotation cell removes colored impurities in the manufacture of premium brightness coating clays at Engelhard Corp.'s Gordon, Ga., facility.*** **(Photo courtesy of Engelhard Corp., Performance Minerals Group.)**

**Saving lime kiln energy** 118
Tennessee River insulated two kilns with lightweight fiber-based board to save energy and money and got a five-month payback for their investment

### FINISHING/CONVERTING

**Automatic folio packaging** 78
Today's high speed folio-size sheet packaging systems have virtually eliminated all manual operations

### NEW TECHNOLOGY

**Biotechnology development** 114
Review of third international biotech conference reveals the potential for applications in the industry

### MANAGEMENT

**New product emphasis** 74
A *P&P* interview with David L. Luke III, Westvaco's CEO and chairman, reveals why product development is a key factor in the company's growth

**Kraft linerboard outlook** 89
The U.S. linerboard industry's supply/demand balance looks favorable through the end of the 1980s, despite increased competition

**API Paper Week report** 152

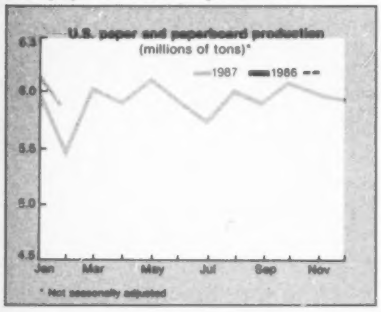
The 110th annual meeting stressed that business conditions are strong, but paper companies need sharper competitive skills to stay afloat

### EXPANSION/MODERNIZATION

**G-P's modernizes Palatka** 104
Thanks to an almost continuous modernization program, the former Hudson mill is now one of the most versatile mills in the industry

# MONTH IN STATISTICS

**U.S. paper and board production**




**U.S. production** of paper and paperboard totaled 5.8 million tons in February, up 5.6% compared with the same month last year, according to the American Paper Institute. On an annualized basis, paperboard output was up 6.6% for the month—almost twice the 3.6% gain registered by the paper grades. The seasonally adjusted trend rate for total paper and board stood at 73.3 million tpy, up 3.2% compared with the record set in 1986 and 5.1% above its year-earlier rate.

**Among major grades**, coated paper benefited from strong commercial printing demand, rising 8.4% compared with last year, but the larger uncoated free-sheet sector showed only a 2.3% gain. The paperboard grades were all strong, led by semichemical medium's gain of 8.8%. Unbleached kraft board increased 6.6%, fueled by continued record fibre box demand.

**Canadian newsprint shipments** totaled 756,000 tons in February, a gain of 8.6% compared with the same month last year. Operating rates stood unchanged from January at 94%. Canadian pulp mills operated flat out at 101% of capacity in February, with shipments totaling 589,000 tons for the month, unchanged from last year. ■

| | Latest month (000 short tons) | | % change from year ago | Annualized year-to-date (000 short tons) | % change from year ago |
|---|---|---|---|---|---|
| **PAPER & PAPERBOARD PRODUCTION[1]** | | | | | |
| Newsprint | Feb. | 441 | 1.6 | 5,588 | 3.8 |
| Uncoated groundwood (s) | Feb. | 128 | 12.3 | 1,572 | 6.2 |
| Coated paper (s) | Feb. | 526 | 7.6 | 6,561 | 8.4 |
| Uncoated free sheet (s) | Feb. | 851 | 5.3 | 10,417 | 2.3 |
| Other printing/writing | Feb. | 114 | 2.7 | 1,377 | 1.0 |
| Total packaging and other paper (s) | Feb. | 410 | 1.2 | 5,136 | 1.5 |
| Tissue | Feb. | 414 | 5.9 | 5,122 | 2.5 |
| **Total paper** | **Feb.** | **2,884** | **4.8** | **35,771** | **3.6** |
| Unbleached kraft paperboard | Feb. | 1,424 | 7.5 | 17,821 | 6.6 |
| Semichemical medium | Feb. | 439 | 5.5 | 5,520 | 8.8 |
| Bleached paperboard | Feb. | 343 | 0.6 | 4,347 | 4.8 |
| Recycled paperboard | Feb. | 681 | 7.4 | 8,495 | 6.1 |
| **Total paperboard** | **Feb.** | **2,887** | **6.3** | **36,180** | **6.6** |
| **Total U.S. paper and paperboard output** | **Feb.** | **5,771** | **5.6** | **71,951** | **5.1** |
| **PULP, WASTEPAPER & FIBER[2]** | | | | | |
| Total U.S. woodpulp production | Jan. | 5,082 | 4.9 | 60,982 | 5.0 |
| Market pulp production | Jan. | 668 | 7.4 | 8,015 | 7.3 |
| Wastepaper consumption at paper/board mills | Jan. | 1,409 | −8.6 | 16,904 | −0.5 |
| Pulpwood consumption (cords) | Jan. | 8,049 | 2.1 | 96,588 | 2.1 |
| **CONVERTED PRODUCTS STATISTICS[3]** | | | | | |
| Corrugated box shipments (billion ft²) | Feb. | 22,704 | 4.6 | 47,412[6] | 4.5 |
| Containerboard inventories at U.S. box plants and mills | Feb. 1 | 2,311 | −7.2 | | |
| **INTERNATIONAL TRADE[2]** | | | | | |
| U.S. paper imports (including products) | Jan. | 1,022 | 9.2 | 12,270 | 9.2 |
| Imports of Canadian newsprint | Jan. | 735 | 11.5 | 8,819[6] | 11.5 |
| U.S. paper exports (including products) | Jan. | 394 | 8.8 | 4,722 | 8.8 |
| Exports of unbleached kraft linerboard | Jan. | 170 | 9.0 | 2,041 | 4.2 |
| Exports of woodpulp | Jan. | 355 | −3.5 | 4,259 | −3.4 |
| Norscan pulp inventories[4] | Feb. 28 | 870 | −34.6 | | |
| Norscan pulp operating rates[4] | Feb. | 95% | 97% | 96% | 93% |
| **CANADIAN STATISTICS[5]** *(reported in metric tons)* | | | | | |
| Total newsprint shipments | Feb. | 756 | 8.6 | 1,506[6] | 6.9 |
| Operating rates | Feb. | 94% | 94% | 98% | 94% |
| Inventories held by U.S. consumers | Feb. 28 | 1,370 | −4.7 | | |
| Other paper/board shipments | Feb. | 507 | 8.1 | 1,028 | 7.8 |
| Woodpulp shipments (export only) | Feb. | 589 | 0.0 | 1,202 | 4.3 |
| Operating rates | Feb. | 101% | 94% | 99% | 90% |

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

# COATED GROUNDWOOD: Optimism turns sour

**Grade structure:** Coated groundwood papers contain at least 10% mechanical pulp, with the balance made up of chemical pulp and fillers. About 85% of U.S. coated groundwood production is No. 5 coated, the rest is No. 4. The latter has higher brightness and usually higher basis weights. No. 5 is valued for the lighter basis weights and runability, though some is actually medium weight.

Most coated groundwood is made in the 32- to 50-lb range (25 x 38 in. in reams of 500), although some 30-lb paper is made, and the group can run to 70 lb. End uses include magazines, Sunday newspaper supplements, catalogs, newspaper inserts, directories, books, flyers, and other commercial printing. In the case of lightweight coated (LWC) paper, coat weight may be about 30% of total sheet weight.

**Production/capacity:** Shipments of coated groundwoods moved upward about 3% in 1986 from a strong 1985, which itself followed a banner 1984. The major growth area was with commercial printers, who received shipments pegged about 14% higher than in 1985. Magazine orders rose fractionally less. Other periodical publishers reduced their paper purchases by about the same amount. Book publishers received more than 5% more coated groundwood paper in 1985 than in the year before.

Major new capacity came online in the second half of 1986, with new machines installed by Bowater Inc. in Catawba, S.C. (197,000 tons), Consolidated Papers Inc. in Wisconsin Rapids, Wis. (180,000 tpy), International Paper Co. in Pine Bluff, Ark. (200,000 tons), and Repap Enterprises Inc. in New Castle, N.B. (200,000 metric tpy). All told, potential groundwood paper capacity rose about 8% in 1986 compared with 1985. Some of that capacity was originally scheduled to come online in 1987.

**Outlook:** The almost 800,000-tpy of new capacity, along with reduced magazine advertising and other factors, will wreak havoc on coated groundwoods in 1987. Advertising pages fell by 1.4% in 1986 and are likely to remain flat this year, with one major weekly publication reporting 16% fewer pages in January 1987 compared with January 1986.

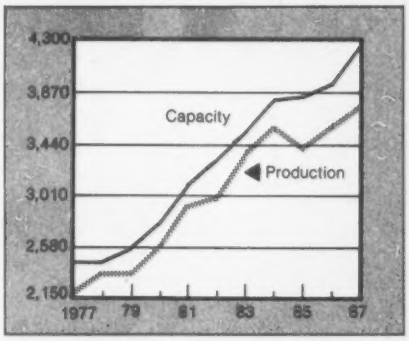
Papermakers may see lower operating rates, possibly below 90%, though, for most, this will merely mean lower profits and not financial ruin. For those producers that rely on market pulp—mostly the smaller, older mills—increasing pulp prices could cut the margin to zero. Some coated groundwood producers may switch to coated free-sheet or uncoated groundwood specialties. No. 5 coated groundwood papers will have the hardest time, while the outlook for No. 4 is uncertain.

**Prices:** Coated groundwood prices first dropped an average of about 4% at the beginning of 1986, dropping 1986 lists to 1984 levels. At that time, No. 5, 40-lb sold for $798/ton, down $44 from 1984. Unofficial cuts of 3% to 4% hit about mid-year and list eventually dropped to about $761 to $765. Prices remained soft in early 1987 into February when three major paper companies dropped their lists for LWC about 10.6%, which would bring No. 5 40-lb to $680/ton from $761/ton. Transaction prices for this grade reportedly have been as low as, or even below in some cases, $600. Other basis weights dropped by a similar amount in February: 38-lb, 10.5%; 36-lb, 9.4%; 34-lb, 8.5%; and 32-lb, 11.4%. Prices for No. 4 remained essentially unaffected, but it suffered discounts of $40 to $50/ton. Prices are not currently expected to pick up until about mid-1988. Cumulative reductions since LWC's high point in January 1985 are greater than 19% on 40-lb, 17.7% on 38-lb, 16.8% for 36-lb, 15.8% on 34-lb, and 16.5% for 32-lb.

Typical pricing trends ($/short ton for 34-lb roto paper year-end) are: 1980, $735; 1981, $760; 1982, $760; 1983, $782; 1984, $890; 1985, $931; 1986, $860; 1987 (first quarter), $787.

**Markets:** Slightly more than 60% of all coated No. 5 is used by magazines, another 16% is used by commercial printers, 17% is shipped directly to catalog and directory printers, and the rest is used largely by book publishers. ■

## SUPPLY/DEMAND (000 tons)




## FORECAST (000 tons)

| | 1985 | 1986 | 1987e |
|---|---|---|---|
| Production[1] | 3,410 | 3,553 | 3,752 |
| Capacity[2] | 3,820 | 3,922 | 4,264 |
| Utilization rate | 89.0% | 91.0% | 88.0% |
| Imports | 393 | 401 | 371 |
| Exports | 44 | 37 | 37 |
| Apparent U.S. consumption | 3,759 | 3,917 | 4,086 |
| lb/capita | 31.42 | 32.43 | 33.51 |
| GNP ratio | 1.05 | 1.07 | 1.09 |

e = Estimate
1. *P&P* estimate.
2. American Paper Institute data.

## TOP U.S. PRODUCERS (000 tpy)

| | Annual capacity (000 tons) | Market share (%) |
|---|---|---|
| **1.** Champion | 669 | 15.3 |
| **2.** Int'l Paper | 650 | 14.8 |
| **3.** Consolidated | 565 | 12.9 |
| **4.** Boise Cascade | 340 | 7.7 |
| **5.** Bowater | 302 | 6.8 |
| **6.** James River | 298 | 6.8 |
| **7.** Blandin | 280 | 6.4 |
| **8.** Mead | 270 | 6.2 |
| **9.** Pentair | 230 | 5.2 |
| **10.** Midtec | 193 | 4.4 |

Market share of top five companies:
**57.5**

Market share of top ten companies:
**86.5**

Total U.S. capacity (1987):
**4.385 million short tons**

**Correction.** Coated free-sheet production figures were incorrectly reported in the March grade profile forecast chart. The correct figures are: 1985—2,465; 1986—2,707; making utilization rates 86.6% for 1985 and 93.6% for 1986.

*NEWSPRINT*

# Newsprint producers support July 1 hike

North American newsprint companies have continued to announce price hikes for July 1 on both coasts, resulting in nearly unanimous support for the increase. Many companies have slated hikes to $610/metric ton from $570. Companies in the West, though, are planning price hikes to $600 from $570, plus a 2% cut in one of two 5% discounts.

The North American market was robust through March, with a number of newsprint mills reporting running at full capacity. The most recent statistics from the Canadian Pulp & Paper Assn. showed that Canadian mills operated at a 99% rate for February compared with 94% a year earlier. Through the first two months of 1987 the mills ran at 98% compared with 94% for the same period in 1986. At U.S. mills, the operating rate was 97% during February and 94% through the first two months of the year compared with a 94% operating rate both during last February and year-to-date 1986.

Total Canadian shipments were up 8.6% to 756,000 metric tons in February and rose 6.9% to 1.506 million tons for the first two months. Shipments to the U.S. alone rose 3.6% to 541,000 tons in February and 4.8% to 1.095 million tons year-to-date. U.S. newsprint mills' shipments rose 2% to 402,000 tons in February and were up 6.1% to 829,000 tons for the year so far.

Production at Canadian mills rose 5.5% to 766,000 tons in February and was up 4.1% to 1.560 million tons through February. U.S. mills' output rose 1.5% to 400,000 tons in February and increased 3.8% to 845,000 tons for the year-to-date.

Stocks at Canadian newsprint mills grew to 331,000 tons at the end of February, up 2.8% from the previous month but down 12.7% from February 1986. At mills in the U.S., however, stocks fell to 64,600 tons at the end of February, down 3.3% from a month earlier and dropping 28.1% from a year earlier.

**Publishers' inventories are holding.** Despite signs that the market was extremely firm, publishers indicated that some excess tonnage was still available. CPPA figures showed U.S. consumption was up 1.5% to 894,000 tons in February. At the same time, publishers' stocks stood at 1.370 million tons or 41 days' supply at the end of February, the same as a month earlier but down 4.5% from the 44 days on hand a year ago.

Analysts expect prices to continue to firm through the summer with less discounting by July. One analyst noted that if the price of newsprint continues to rise and supplies tighten, newspapers may decide to use coated paper for Sunday supplements or special sections.

Meanwhile, the movement to increase newsprint prices in the U.K. by 9.6% on June 1 recently got support from domestic producers Consolidated-Bathurst Inc. and Shotton Co. Ltd. This followed earlier announcements by Nordic and Canadian suppliers, which would raise the list price on 48.8-g newsprint to £400/metric ton. The current list price is £365, although transaction levels are 8% to 10% lower.

**U.S. newsprint demand has been escalating, while capacity additions have been relatively modest. (Capacity expressed in 000 metric tons.)**

| Year | U.S. consumption[1] | U.S. capacity[2] | Canadian capacity[3] | Total capacity | Operating rate, U.S. and Canada combined (%) |
|---|---|---|---|---|---|
| 1984 | 11,431 | 5,306 | 9,820 | 15,126 | 92.8 |
| 1985 | 11,587 | 5,250 | 9,820 | 15,070 | 90.3 |
| 1986 | 11,949 | 5,315 | 10,040 | 15,355 | 93.7 |
| 1987e | 12,250 | 5,368 | 10,080 | 15,448 | 93.4 |

1. Source: American Newspaper Publishers Assn.
2. Source: American Paper Institute.
3. Source: Canadian Pulp & Paper Assn.
e = Estimate.

■ The **Newspaper Advertising Bureau Inc.** reported that U.S. newspaper advertising spending by retailers in 1986 rose by 6.5% over 1985 levels to $14.3 billion. Of this, advertising by general merchandise and apparel stores rose by 5.2% to $5.4 billion. ■

## Southwestern to buy 80% of Gulf Printing

Southwestern Bell Corp. has agreed to acquire an 80% stake in Gulf Printing Co., Houston, Texas, in a stock-for-stock merger with a right-of-first-refusal for the remaining shares. The deal is expected to conclude by the end of May. Gulf Printing is a full service commercial printer, with four plants in Houston, Texas, and Oklahoma City, Okla., and it is one of the top ten directory printers in the country. The company is currently printing 70% of the directories for Southwestern Bell's directory publishing unit.

Southwestern Bell Publications, according to the company's annual report, posted directory advertising revenues of $824 million in 1986. One of the largest and fastest-growing directory operations, Southwestern Bell Publications publishes approximately 1,100 White and Yellow Pages and other special directories in 46 states and the District of Columbia. ■

## Gaspesia plans three-year upgrade of newsprint output

Gaspesia Pulp & Paper Co. plans to spend C$113 million between now and 1990 to modernize its 225,000-metric-tpy newsprint mill in Chandler, Que. Not only will the quality of the newsprint be upgraded, but the capacity will be increased by 10% to 247,000 tpy, the company said.

The project involves the installation of top-wire formers on the Chandler mill's two newsprint machines, as well as the speeding up of one of the machines. Grinder loading operations will be automated, and a fourth barker will be installed in the woodroom and upstream and downstream process. Changes in equipment will

# U.S. LINERBOARD INDUSTRY FACING FAVORABLE SUPPLY/DEMAND OUTLOOK

## However, competition from wastepaper-based grades and growth of plastic film in kraft paper markets creates some uncertainty

By WILL MIES, Executive News Editor

U.S. kraft linerboard producers will enjoy a favorable supply/demand balance through the remainder of the decade. However, exports will face increasing competition from recycled paperboard grades in many markets, and nontraditional producers such as Portugal, Brazil, and South Africa may capture a major share of future growth in international trade.

Even though profitability is on the upswing, the restructuring of the U.S. unbleached kraft industry will continue. New technologies such as multi-ply forming, high-pressure presses and preprinting will enable producers to reduce costs and increase product quality. The kraft paper market will continue to face strong competition from plastic in the grocery bag and sack market.

These were a few of the themes discussed at the Second International Unbleached Kraft Conference, sponsored by *Pulp & Paper*, at the Waldorf-Astoria Hotel in New York City. Session chairmen were William R. Laidig, chairman, Great Northern Nekoosa Corp.; Richard L. Trueb, president, Interstate Resources Inc.; Daniel J. Hince, general export sales manager, Union Camp Corp.; and James Doughan, senior vice president-bag and kraft paper marketing, Stone Container Corp.

**LIMITED GROWTH OF CAPACITY.** Copeland Economics Group president, William G. Copeland, projected a favorable containerboard supply/demand outlook through the end of the 1980s, despite the downturn expected this year.

A major reason for the high operating rates expected throughout the decade is limited capacity growth. Unbleached kraft board capacity is expected to grow only 2.3% over the 1987-89 period. According to Copeland, the industry can have more confidence in such projections of tight markets because less kraft paper is available to be swung into linerboard and because there are fewer new mills around which can add incremental capacity at a low cost.

A forecast of future U.S. corrugated container demand based on a detailed analysis of end-use markets was presented by Kenneth E. Lowe, director of Communication & Information Services, a market research firm based in Pleasant Hill, Calif.

He projected total U.S. corrugated box demand would grow 2.2% over the 1986-95 period compared with a 2.7% rate for the 1971-85 period. The highest growth was projected for the important food end use category, which was expected to grow at a 3.3% annual rate over the 1986-95 period compared with a 4.3% per year growth rate over 1971-85.

According to Nickey J. Rudd, vice president, manager-process and project engineering, BE&K Engineering Co., at the then current $320 linerboard list price, a new greenfield mill would not be an attractive investment opportunity. Such a mill (1,200 tpd, costing $360 million) would show a slight loss before tax in its first year of operation.. But at a hypothetical $400/ton price, the mill

*TABLE 1:* **Return on investment from new 1,200-tpd greenfield linerboard mill with optimistic view of future sales price.**

| | First year | 15-year average |
|---|---|---|
| Direct capital cost of facility | $360 mm* | |
| Capitalized interest during construction | 32 mm | |
| Total capital cost | 392 mm | |
| Direct linerboard manufacturing cost | 160/ton | $160/ton |
| Interest expense | 77/ton | 40/ton |
| Corporate overhead expense | 10/ton | 10/ton |
| Total cash cost | 247/ton | 210/ton |
| Depreciation | 50/ton | 50/ton |
| Total cost of product sold | 297/ton | 260/ton |
| **Selling price** | **$400/ton** | **$400/ton** |
| Less freight cost | 30/ton | 30/ton |
| Net price to mill | 370/ton | 370/ton |
| Before-tax mill margin | 73/ton | 110/ton |
| Before-tax mill margin (today's dollars) | | 46.2 mm/yr |
| **Tax basis analysis** | | |
| Net price to mill | $370/ton | $370/ton |
| Cash cost of product sold | 247/ton | 210/ton |
| Gross margin | 123/ton | 160/ton |
| Less depreciation | 50/ton | 50/ton |
| Taxable income | 73/ton | 110/ton |
| Before-tax return on investment | | 16.1% |
| Before-tax return on equity[1] | | 160.0% |
| **Cash required for debt retirement in 15 yrs** | | **$ 51/ton** |

*Millions.
1. Includes capitalized interest.

would be immediately profitable and would generate a 16% before-tax return on investment over a 15-year period (Table 1).

Cost-effective modernization and optimization, however, is attractive even at current prices. Rudd presented an example in which a 1,400-tpd mill is modernized and expanded to 1,680 tpd through the addition of a recycled fiber line. This project would cost $100 million and would yield an attractive return (35% over 15 years), even at current linerboard prices.

**MORE RESTRUCTURING?** Is the restructuring in the U.S. unbleached kraft industry over? No, more is on the way, according to H.C. Bowen Smith, managing director of Salomon Brothers Inc. In 1980, the top five U.S. linerboard producers had a combined market share of 34%. By 1986, the figure had risen to 43%, and by 1990 the concentration could reach 51%, he projected.

Among the reasons for this growing concentration have been the aggressive attacks of corporate raiders, the disenchantment of some large diversified companies with returns in the paper industry, increasing concentration on fewer product lines by companies within the paper industry, and dramatic fluctuations in exchange rates that sharply reduced industry profitability in 1985.

Another reason for the merger binge is that companies are finding it cheaper to buy rather than build new mills. Smith estimated that a new 1,000-tpd linerboard mill would cost about $350 million to build. That price works out to $244,000/daily ton—or about three times the cost of recent acquisitions.

Use of financial leverage to expand rapidly in the paper industry through acquisitions was described by James B. Malloy, president and chief operating officer, Jefferson Smurfit Corp. Since 1978, Jefferson Smurfit has grown from $50 million in sales to more than $1 billion in 1986 through a series of acquisitions that have included Alton Box Board Co., Diamond Packaging Corp., 80% of Publishers Paper Co., and 50% of Container Corp. of America.

In making acquisitions, Smurfit tries to find companies from which future cash flow can be maximized to service debt used for the acquisition. Smurfit tries to find companies that have sound assets, that are related to its four core businesses, and that offer some synergies with Smurfit's existing operations. Good market timing is also important, and Smurfit has made many of its acquisitions during industry downturns, when assets can be purchased more cheaply.

*TABLE 2:* **Comparative cost of producing linerboard from kraft pulp, wastepaper and a furnish blend.**

| | Case 1 | Case 2 | Case 3 |
|---|---|---|---|
| Fiber furnish | 100% kraft | 100% OCC | 80/20 blend |
| Raw materials | 103 | 109 | 104 |
| Conversion | 100 | 108 | 79 |
| Capital-related | 35 | 22 | 36 |
| Cost of sales | 50 | 31 | 49 |
| **Total delivered cost** | **288** | **270** | **268** |

Source: Andover International Associates.

Once a company is acquired, Smurfit tries to implement substantial cost savings from improved operation of facilities, increased productivity and reduced administrative expense. The company offers substantial bonuses to managers as part of an incentive program based on improving cash flow. Working capital is managed tightly, on a plant-by-plant basis.

**NEW QUALITY REQUIREMENTS.** Multi-ply forming permits linerboard manufacturers to achieve improvements in compression strength, offers them the flexibility to use various types of furnishes, and can provide a smoother printing surface, according to Leslie J. Taylor, chief project manager for multi-ply, Beloit Walmsley Ltd. He said that most new linerboard machines that have gone onstream in Europe over the last five years have had multi-ply formers. In the U.S., there has been more caution about going to multi-ply forming because of difficult startups at one or two mills. Nevertheless, Taylor noted that Willamette Industries Inc. has been successfully producing a three-ply sheet at its Albany, Ore., mill.

Preprinted linerboard is a cost-effective way to produce point-of-purchase corrugated packaging as compared with traditional methods of applying graphics to corrugated, according to Laurence C. Schiffenhaus Jr., vice president and national sales manager, Schiffenhaus Industries Inc.. He said there will soon be 17 flexographic preprint presses being operated by 14 companies in North America, including one installation scheduled to start up in late 1987. Present capacity of these printing presses is about 16 billion ft² based on press widths and assumed order mixes. U.S. capacity is about 13.5 billion ft², with another 2.5 billion ft² in Canada.

"This is 6% of the total box market in the U.S., and since at least half of the present 270-billion-ft² box market is made up of corrugated that will never be converted to preprint, present capacity could accommodate about 10% of the potential market for high-quality graphics." Schiffenhaus said he was confident based on what he has seen in the market so far that "this capacity will be sold within the next five years."

**WASTEPAPER USE GROWING.** Future prospects for increasing the use of old corrugated containers (OCC) in manufacturing containerboard was discussed by Fred D. Iannazzi, president of Andover International Associates. He analyzed the economics of producing linerboard at three different facilities: a 1,000-tpd kraft linerboard mill using 100% virgin fiber, a 450-tpd recycled linerboard mill, and a kraft linerboard mill which had been expanded by 200 tpd to 1,200 tpd using OCC.

The analysis assumes a cost for woodfiber in the Southeast for the two kraft linerboard mills of $62/cord. Wastepaper cost for the midwestern recycled mill was based on a cost of $76/ton for OCC.

Based on this analysis, the 80/20 blend mill has a

slightly lower delivered cost ($268/ton) than the other mills, based mainly on its higher throughput (Table 2). High-pressure presses have become an accepted technological innovation in the paper industry, with more than 40 installed worldwide, mainly for linerboard production, according to Michael J. Ducey, technical editor, *Pulp & Paper*. High-impulse presses make use of higher than usual linear press loadings, typically 1,100 to 2,000 pli or greater, combined with double felting and a nip width of 3 to 3.5 in.

Machine speed increases are the main reason for installing such presses, but steam savings and improvements in product quality are additional factors. Some linerboard machines in the U.S. have been able to increase machine speed up to 12%, with the average falling between 8% and 10%. Since 1980 about a dozen high-pressure presses have added around 525,000 tpy to U.S. linerboard capacity.

**WORLD MARKET OUTLOOK.** World containerboard demand will rise from 49 million tons in 1985 to 58.4 million tons in 1990, says Rodney L. Young, vice president, Resource Information Systems Inc. (RISI).

However, kraftliner is not expected to grow at quite the same pace as total world containerboard demand over the next five years. Kraftliner's share of the total containerboard demand is projected to decline from 43.3% in 1985 to 42.1% in 1990 due to big increases in worldwide recycled containerboard capacity. Depressed wastepaper prices will keep the cost of recycled containerboard competitive with kraftliner, even in the U.S. market, according to Young.

Nevertheless, kraftliner mills will operate at relatively high levels thanks to limited capacity expansion, particularly in the U.S. World kraftliner operating rates are forecast to rise from 89.1% in 1985 to a peak of 93% in 1989 before declining to 90.3% in 1990, which is expected to be a recession year (Tables 3 and 4).

Although Swedish and U.S. producers will remain the largest exporters of kraft linerboard, "nontraditional producers are going to take the lion's share of trade expansion over the next four years," Young noted. RISI expects the Nordic and North American share of world exports to drop from 85% in the mid-1970s down to only 70% by 1991. This reflects the competitive cost advantage of such low-wood-cost countries as Brazil, Portugal and South Africa (Table 5).

**NO KRAFTLINER GROWTH IN EUROPE.** Even though European corrugated box shipments may rise about 3% in 1987, demand for kraftliner may decline because of increased use of testliner and some reduction of box plant inventories built up last year, according to an analysis by Jan Carlström, director of Scanpapp.

He estimated that inventories at European box plants rose about 150,000 metric tons last year. At the same time, some erosion of kraftliner's market share is believed to have taken place because of a substantial widening of the price differential between kraft and testliner—as much as 40% last fall—after the breakdown of wastepaper prices in Europe.

At the same time, European kraftliner mills will be adding about 300,000 metric tpy of incremental capacity over the 1986-89 period. This will result in agrowth rate of 3.4%/year—more than double the rate of the preceding five years. In addition, testliner capacity will be

*TABLE 3:* **World containerboard summary (000 metric tons).**

| | 1975 | 1980 | 1985 | 1990 |
|---|---|---|---|---|
| **Demand** | | | | |
| Containerboard | 31.0 | 42.4 | 49.0 | 58.4 |
| Kraftliner | 14.4 | 19.3 | 21.2 | 24.6 |
| Kraftliner share (%) | 46.3 | 45.5 | 43.3 | 42.1 |
| **Capacity** | | | | |
| Containerboard | 42.5 | 47.9 | 55.9 | 66.0 |
| Operating rate (%) | 73.0 | 88.3 | 87.6 | 88.5 |
| Kraftliner | 19.1 | 20.8 | 23.8 | 27.3 |
| Operating rate (%) | 75.3 | 92.5 | 89.1 | 90.3 |

*TABLE 4:* **Regional containerboard and kraftliner demand summary (000 metric tons).**

| | 1973 | 1985 | 1991 |
|---|---|---|---|
| **North America** | | | |
| Containerboard | 16.0 | 19.5 | 22.6 |
| Kraftliner | 10.5 | 12.8 | 14.5 |
| Kraftliner share | 65.6 | 65.7 | 64.4 |
| **Western Europe** | | | |
| Containerboard | 8.4 | 10.6 | 12.1 |
| Kraftliner | 2.6 | 2.9 | 3.2 |
| Kraftliner share | 31.2 | 27.0 | 26.5 |
| **Japan** | | | |
| Containerboard | 5.1 | 5.8 | 6.6 |
| Kraftliner | 1.5 | 1.7 | 2.0 |
| Kraftliner share | 29.6 | 29.5 | 31.0 |
| **Other Asia** | | | |
| Containerboard | 1.8 | 5.8 | 8.6 |
| Kraftliner | 0.3 | 0.8 | 1.1 |
| Kraftliner share | 15.2 | 13.0 | 13.0 |
| **Other regions** | | | |
| Containerboard | 4.2 | 7.3 | 9.2 |
| Kraftliner | 1.8 | 3.1 | 3.9 |
| Kraftliner share | 43.5 | 42.3 | 42.5 |

*TABLE 5:* **Production costs for selected regions (variable costs delivered to western Europe, U.S.$/metric tons).**

| | 1975 | 1980 | 1985 | 1990 |
|---|---|---|---|---|
| U.S. South | $174 | $275 | $277 | $305 |
| Sweden | 270 | 357 | 267 | 373 |
| Brazil | 220 | 294 | 209 | 265 |

Source: Resource Information Services Inc. (RISI).

growing about 3%/year over the same period, with rebuilds and reactivation of some machines.

Kraftliner imports must therefore reduce in 1987, or European operating rates will be under pressure.

Nordic linerboard mills are adopting a number of strategies to remain competitive, such as reducing the amount of wood needed to produce a ton of linerboard, concentrating on lightweight linerboard, reducing production and distribution costs, and switching to value-added products such as white-top linerboard, according to Folke Burstrand, president, SCA Nordliner AB.

The Canadian linerboard industry has undergone considerable change over the past decade, said Albert Lacroix, manager-trade sections, Canadian Pulp & Paper Assn. Although kraft linerboard capacity has remained relatively flat at 1.2 million metric tons over the past decade, the structure of the industry has changed dramatically. Three linerboard mills (two producing kraft) have shut down, removing some 400,000 tpy of capacity. Canadian capacity now stands at 900,000 tons. The second development was the emergence of recycled linerboard capacity, which currently totals 300,000 tons—25% of total capacity.

**KRAFT PAPER AT CROSSROADS.** The U.S. kraft paper business today is one of contrasts, noted Albert R. Russell, general sales manager, kraft paper and bleached board, Georgia-Pacific Corp. Although alternative packaging is growing, mills operate with full order books.

The "apparent" decline in the kraft paper industry began in 1974 when shipments peaked at slightly more than 4.0 million tons. Since then, unbleached kraft paper shipments have declined to about 3.3 million tons.

However, the real decline in kraft paper shipments began earlier, particularly in wrapping and merchandise bag papers. Multiwall paper shipments have remained relatively flat over the past 15 years at close to 800,000 tpy but have been losing ground in relation to general economic activity. Grocery bag and sack paper shipments, however, have shown steady growth and total more than 2.0 million tons.

Rising polyethylene prices may slow down the rate of plastic substitution in the grocery sack market, but not dramatically, according to Robert J. Bauman, associate director, Chem Systems Inc.

The polyethylene industry is emerging from a five-year downcycle caused by oversupply. Factors that contributed to this situation included substantial capacity expansion in linear low-density polyethylene resin and major polyethylene expansions in Canada and Saudi Arabia. But by late last year, polyethylene industry operating rates were over 90% of capacity and prices appear likely to rise at a rapid rate over the 1987-88 period.

Higher polyethylene costs should result in higher converted plastic sack prices since polyethylene represents about 50% to 60% of the total cost of a finished sack. But a number of other factors will also affect whether higher PE costs will help the competitive position of kraft paper. These include: (1) the volume of low-cost imported plastic sacks entering the U.S., currently estimated at anywere from 20% to 35% of the total market; (2) whether domestic plastic sack manufacturers price competitively to gain future market share; and (3) whether additional kraft paper producers decide to withdraw capacity.

**BATTLE AT THE CHECKSTAND.** There have been many forecasts that plastic bags would have about 40% of the grocery sack market by the end of the 1980s, actual penetration has been much less, noted Sam Posner, vice president-retail sales of Stone Container Corp.

In 1986, the U.S. paper industry shipped 2.2 million tons of grocery bag and sack paper—the same tonnage level as in 1981. Because supermarket sales have increased over that period, the American Paper Institute estimates that paper today has 85% of the market compared with 100% five years ago.

There are a number of reasons plastic didn't capture the larger market share that some predicted. One reason was that use of the plastic sacks required more in-store training by supermarket chains, which feared the transition would cause a slowdown at their checkout counters. Stores were also afraid of antagonizing consumers, who generally prefer paper sacks.

Another reason was that oversupply from late 1984 all through 1985 kept kraft sack prices equal to higher-quality plastic T-shirt sacks. This virtually "stopped plastic penetration in its tracks" but was "financially damaging to the industry," according to Posner. Poor profitability caused companies to withdraw approximately 500,000 tpy of production from the market. This left "the industry in the position where, unless there is a switch to more plastic, the remaining paper suppliers won't be able to satisfy the demand." Posner said he did not expect the kraft paper sack to go the way of the "dinosaur and the buggy whip." Rather, paper sacks would be used by supermarket chains along with plastic bags to maximize checkout counter speed and efficiency.

A different vision of the future of the grocery sack market was presented by Ron Schmieder, marketing manager-grocery sacks, Mobil Chemical Co. He estimated that plastic sacks' share of the grocery market had grown from 5% in 1982 to 39% in 1986. And he predicted plastics would capture 52% by 1988 and 63% by 1990.

Schmieder said that a number of factors have helped plastic expand its market share. Most important, he said, has been new resin development in the last three years, which has allowed the industry to downgauge its product without sacrificing functionality. ■

*Complete proceedings of the conference, Unbleached Kraft Markets II, are available for $167 per copy from the* Pulp & Paper *Book Dept., 500 Howard St., San Francisco, Calif. 94105. Ph. (415) 397-1881.*

# GROWTH IN COATED PAPER CAPACITY SHOULD REMAIN STRONG THROUGH 1989

## After starting up four new paper machines last year, groundwood producers are having trouble handling all of the new capacity

**By CARL ESPE, News Editor**

Fueled by strong demand from magazine publishers and commercial printers, coated paper has been the fastest growing grade segment in the U.S. paper industry in recent years. According to American Paper Institute data, capacity for coated groundwood paper grew an average of 5.5% a year from 1977 through 1986, while coated free-sheet capacity grew 4.4% a year. In contrast, total paper and paperboard capacity grew at an annual rate of only 2.1% over the same period.

Coated capacity will grow even faster over the next three years, according to API, particularly for free-sheet paper. API expects growth to average 5.9% a year for coated groundwood paper and 6.3% for coated free-sheet for the 1987-89 period. Total paper and paperboard growth, on the other hand, will slow to just 1.8% a year.

**A BUMPY ROAD.** While average growth has been high, Figure 1 illustrates that the actual pattern of coated-paper capacity additions hasn't always been smooth. Coated groundwood capacity took off at the start of the decade, rising 8.1% in 1980 and another 10.3% in 1981, and continued strong through 1984. St. Regis Corp., Weyerhaeuser Co. and Mead Corp. brought new coated groundwood paper machines online in 1982, adding some 545,000 tpy to capacity. Despite the 1982 recession, demand was strong enough during this period to absorb the new capacity without too much trouble.

The pattern was somewhat different for the free-sheet grades, where anemic growth became the rule throughout the late 1970s and early 1980s. New paper machines were installed by Boise Cascade Corp. in 1981 and Scott Paper Co. in 1982, however, and capacity took off in 1983 and 1984, rising 8.8% and 12.9%, respectively.

After these big buildups, groundwood and free-sheet capacity growth pulled back abruptly. Groundwood additions fell to a below-average increase of 1.4% in 1985; free-sheet dropped to 1.9% in 1985 and 1.7% in 1986.

**GROUNDWOOD GLUT.** In 1987, big capacity increases are back with a vengeance, particularly in the ground-

*FIGURE 1:* **U.S. coated paper capacity additions.**

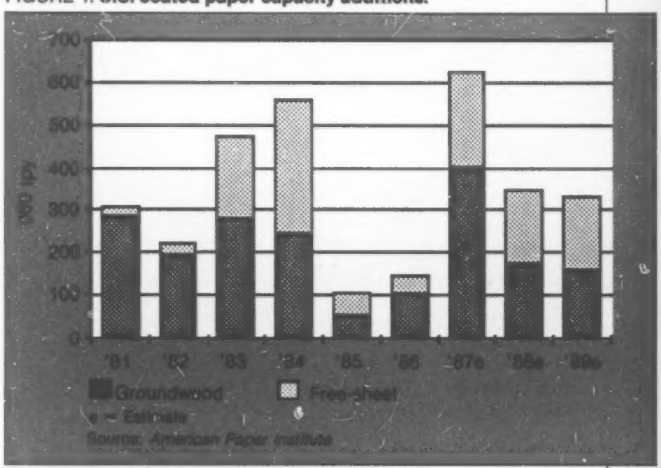



*TABLE 1:* **New coated paper and paperboard machine installations, 1981-88.**

| Year | Company, mill | Capacity added (000 short tpy) |
|---|---|---|
| | **Coated groundwood paper** | |
| 1982 | Mead, Escanaba, Mich. | 200 |
| 1982 | St. Regis, Sartell, Minn. | 170 |
| 1982 | Weyerhaeuser, Columbus, Miss. | 175 |
| 1986 | Sonoco Carolina, Catawba, S.C. | 167 |
| 1986 | Consolidated/Biron Div., Wisconsin Rapids, Wis. | 180 |
| 1986 | International Paper, Pine Bluff, Ark. | 200 |
| 1986 | Repap/Miramichi, Newcastle, N.B. | 220 |
| | **Coated free-sheet paper** | |
| 1981 | Boise Cascade, Rumford, Maine | 189 |
| 1982 | Scott Paper/S.D. Warren, Skowhegan, Maine | 200 |
| 1985 | Scott Paper/S.D. Warren, Skowhegan, Maine | 215 |
| 1988 | Potlatch, Cloquet, Minn. | n.a. |
| | **Coated bleached paperboard** | |
| 1986 | Westvaco, Covington, Va. | 175 |

n.a. = Not available.

wood sector. During the last half of 1986, four new coated groundwood machines with the capacity for almost 800,000 tpy were started up in North America by Bowater Carolina Co., Consolidated Papers Inc., International Paper Co., and Repap Enterprises Inc. of Canada. As a result, U.S. capacity will rise a record 402,000 tpy in 1987, up 10.2% from 1986 (not counting the new Canadian machine, which will also contribute to U.S. supplies). In contrast to five years ago, the market has so far been unable to digest the new capacity, and producers have had to lower prices and scramble for business this year despite continued healthy demand for groundwood papers. Luckily for groundwood producers, no new machines and few capacity-expanding rebuilds are currently in the works, and capacity increases should slow to a relatively calm 4.0% in 1988 and 3.5% in 1989.

*TABLE 2:* **Coated paper and paperboard modernization projects and capacity added (000 short tpy).**

| Projects completed in 1986 | Capacity added |
|---|---|
| Crown Zellerbach, St. Francisville, La.<br>Rebuild of No. 2 coated groundwood paper machine | 30 |
| Dunn Paper, Port Huron, Mich.<br>Added coater to No. 3 machine to produce coated lightweight specialty packaging papers | n.a. |
| Federal Paper Board, Riegelwood, N.C.<br>Rebuild of coater on No. 15 bleached board machine to improve quality, add some capacity | n.a. |
| Gulf States Paper, Demopolis, Ala.<br>Bleached board machine rebuild; included two new coaters | 20 |
| Mead, Chillicothe, Ohio<br>Rebuild of coater on No. 10 carbonless paper machine | 35 |
| Union C[illegible], Franklin, Va.<br>Rebuild of No. 1 coated bleached board machine | n.a. |
| [illegible] scheduled for completion in 1987 and later | |
| Appleton Papers, West Carrollton, Ohio<br>Convert No. 3 machine from carbonless basestock to coated carbonless | n.a. |
| Champion International, Duckport, Maine<br>Rebuild No. 4 groundwood machine and convert to LWC; scheduled for completion in 1989 | 33 |
| Consolidated Pa[illegible], Wisconsin Rapids, Wis.<br>Rebuild No. 14 coated free-sheet machine and install new coater | 10 |
| Mead, Escanaba, Mich.<br>Modernize No. 3 LWC machine and [illegible] coaters | n.a. |
| [illegible] Paper, Kalamazoo, Mich.<br>Rebuild off-machine coater at free-sheet mill | n.a. |
| Pe[illegible]ster, Niagara, Wis.<br>Rebuild No. 3 LWC machine and [illegible] coater | 12 |
| Jefferson Smurfit, Middletown, Ohio<br>Rebuild recycled paperboard machine, add new two-stage clay coater | n.a. |
| Westvaco, Luke, Md.<br>Complete five-year improvement program adding 30,000 tpy to coated free-sheet capacity each year from 1984 to 1988 | 150 |

n.a. = Not available.

**PROJECTS UNDER STUDY.** Most producers would likely prefer some breathing room before more new capacity is announced, but there are several projects being considered that could be approved and brought online by the end of the decade. Among the most likely candidates, Champion International Corp. is studying a coated free-sheet machine for its Quinnesec, Mich., market bleached kraft pulp mill. A 500- to 600-tpd uncoated machine was proposed for the mill in 1984, but that project was shelved after Champion bought St. Regis later that year. Rust International is participating in the current study. Also in the free-sheet sector, International Paper proposed a new 150,000-tpy paper machine in 1985, but no recent activity on this project has been reported.

One project that could be reactivated is Blandin Paper Co.'s proposal for a new 204,000-tpy coated groundwood unit at its Grand Rapids, Minn., mill. This project, which was postponed twice due to financing problems, could be a beneficiary of the recent purchase of Blandin's parent company, British Columbia Forest Products Ltd., by Fletcher Challenge of New Zealand. Another currently inactive project is Makin Pulp & Paper Ltd.'s plan for a 135,000-tpy coated and uncoated groundwood paper mill to be built in Britannia Beach, B.C.

**PAPERBOARD EXPANSION.** The largest recent project in coated paperboard was the completion of a 175,000-tpy coated solid bleached sulfate machine at Westvaco's Covington, Va., mill last year. Another area of activity is coated unbleached kraft board, where Manville Forest Products Corp. has been modernizing its West Monroe, La., mill for the past several years. Capacity of the mill will increase 200,000 tpy to 840,000 tons by the end of this year. Finally, Mead is studying a possible 400,000-tpy expansion of coated unbleached kraft paperboard capacity, with a decision expected by year's end. ■

# PAPER INDUSTRY RIDING A WAVE, BUT TRADE WOES STILL CAUSE CONCERN

## Strong markets spark optimism at API Paper Week, but sharper competitive skills are needed to stay afloat in international markets

**P&P STAFF REPORT**

Strong business conditions spread a spirit of optimism over the American Paper Institute's 110th annual Paper Week meeting, Mar. 8-11, in New York City. But even though the recovery has been fueled by a resurgence in export demand, the issue of U.S. paper industry competitiveness in international markets remained a source of concern for some speakers.

The U.S. paper industry has done better than most "smokestack industries" in preparing itself to compete in world markets by vigorously controlling costs, noted API chairman Burnell Roberts, who is chairman and CEO of Mead Corp. Nevertheless, he noted that the industry's success in world markets also depended on "fair and free" international trade.

While agreeing that the U.S. paper industry is probably the only basic industry in our country that is cost-competitive in the markets of the world, David L. Luke, chairman and CEO of Westvaco Co., warned U.S. producers against becoming too complacent.

For example, he noted that the U.S. for a long time has had a big jump on other countries because of its abundant forests. However, pine trees can grow at least twice as fast in Brazil, and the growth rate of Brazilian eucalyptus far outstrips that of U.S. hardwoods. Luke cautioned that the U.S. cannot depend on research to get it out of this bind since the levels of both academic and governmental forestry research in the South have declined by about 25% since the mid-1970s. For process development, U.S. paper companies have relied heavily on suppliers and engineering firms, which can transfer the new technology to overseas competitors.

**NO REASON FOR COMPLACENCY.** What is needed, Luke said, is more product innovation. He observed that many of the U.S. industry's major commodity products, such as containerboard, newsprint, and many uncoated white papers, differ very little from products offered 50 years ago. Such complacency is dangerous because "without a steady flow of innovation, it becomes relatively easy for low-cost suppliers from other parts of the world to strike right at the American market with high expectation of success."

Luke noted that no U.S. producer "has successfully achieved all of the major product characteristics that the users in at least one country [presumably Japan] have available to them from their own domestic sources." He urged U.S. producers to meet the quality levels demanded by overseas customers, who generally want to import products comparable to what they can buy in their own markets.

The same scenario is being played in the high-value printing/writing paper field, where many of the imports into the U.S. are aimed toward the very top-quality categories. "I would say that a year or so ago the characteristics of the higher-quality imported offerings were not equaled by more than one or two out of a full range of potential U.S. suppliers," Luke said. He encouraged U.S. producers to keep up a steady pace of innovation. If not, he warned, "the present flow of uncoated white paper from Brazil into the U.S. is a perfect example of what will happen in our other commodity markets."

**API VIEW ON CANADIAN TRADE TALKS.** Irene W. Meister, vice president-international of API, stated API's position on U.S. free trade negotiations with Canada: "First, we want total removal of tariffs in both countries on all paper and paperboard products rather than a formula reduction of existing tariffs." She noted that the formula approach will not correct trade imbalances because so many Canadian products already enter the U.S. duty-free and "you cannot apply formula cuts to zero tariffs—zero is zero."

Second, API is concerned with Canada's policy of subsidizing the increased capacity that "unquestionably will be directed toward the U.S.," noting that the Canadian market cannot absorb this new capacity. About 90% of Canadian paper and board exports enter the U.S. duty-free, while only 30% of U.S. exports have duty-free status in Canada. This is largely due to the fact that the U.S. imports large amounts of pulp, newsprint, and uncoated printing paper, all of which are duty-free. Dr. Meister encouraged the two governments to solve the tariff problem at upcoming negotiation sessions, while

**Attending a luncheon during API's annual Paper Week held in New York City were (*left to right*) Burnell R. Roberts, chairman of API and chairman and CEO, Mead Corp., along with William Safire, Pulitzer Prize-winning journalist, and Red Cavaney, president of API.**

conceding the fact that dealing with the U.S. Congress and Canada's provincial and federal governments will pose some hurdles.

**MAKING PULP.** U.S. and Canadian producers of market pulp are facing increasing international competition from countries such as Brazil, Spain and Portugal, noted Ronald J. Slinn, vice president of API's Pulp Materials & Technology Group.

The increasing cost of entry into the market pulp business might slow the emergence of some of these new competitors. Building an optimally sized greenfield mill in the U.S. currently costs between $600 and $800 million—or more than $600,000 per daily metric ton of capacity. However, the cost of doubling the capacity at the Aracruz market pulp mill in Brazil from 500,000 tons to 1 million tons could exceed $1 billion—or more than $700,000 per daily ton.

The introduction of the Brazilian type of eucalyptus pulps in 1978 was a major new product development for market pulp. "The combination of favorable climatic conditions and innovative tree breeding has currently made it possible for some Brazilian eucalyptus producers to offer pulps in which the fibers will be customized to their client's individual papermaking requirements and grown in as few as seven years," the API executive commented.

One of the few major technological innovations in pulp manufacturing in recent years has been the development of thermomechanical pulp (TMP) and chemithermomechanical pulp (CTMP) in the Nordic countries, primarily as a way to get more usable fiber from their more costly wood. North American producers have followed the lead of Nordic producers but "it remains to be seen whether the alphabet pulps are indeed suited to the unique individual requirements of a broad range of market pulp consumers," Slinn cautioned.

Slinn estimated that the Canadians will be experimenting with some 750,000 metric tpy of new CTMP capacity over the next several years. The generally accepted view is that CTMP is better suited to an integrated operation, where it can be customized to the end product, he noted.

The decline of the dollar against many (but not all) foreign currencies over the past 24 months has dramatically strengthened the competitive position of North American market pulp producers over their Nordic rivals. This was reflected in capacity utilization rates last year of 100% for the U.S. and 92% for Canada, in sharp contrast to only 83% for Sweden and 86% for Finland. Meanwhile, producers in other countries whose currencies are more closely linked to the U.S. dollar were also able to run full-out in 1986: 98% for Brazil, 105% for Portugal, and 107% for Spain.

"Of course, the flip side of this aspect of the international pulp market is the buying power of consumers in countries where currencies have recently strengthened significantly against the U.S. dollar," Slinn said. The most dramatic example is Japan, where pulp imports from the U.S. jumped 32% in 1986 from the previous year, while the domestic Japanese market pulp industry ran at only 74% of capacity. U.S. pulp consumers have had to absorb the full impact of the recent pulp market upturn since they have not received any benefit from the exchange rate.

Slinn said that the pulp market began 1987 "with somewhat reduced but nevertheless robust vigor." Producers' inventories were near rock-bottom levels and consumers' inventories were only marginally above normal. "Even modest real economic growth in the countries comprising the world's major pulp markets this year and next would generate sufficient additional demand to confirm whether or not there is indeed slack market pulp capacity in the Nordic countries.

"Sustained demand over the remainder of this decade, combined with the prospect of a total increase of less than 2% in world chemical paper-grade market pulp capacity over the next two years, could encourage some minor league pulp suppliers to become bigger contenders in the future," the API executive said. Two of those countries which are likely to come from behind in the future are South Africa and Chile. And New Zealand is another.

**FURTHER GROWTH FOR WASTEPAPER.** Results from the first two months of 1987 indicate that the growth trend in U.S. wastepaper consumption should continue through 1987, according to J. Rodney Edwards, vice president-paperboard of API. Last year, collections of recyclable paper in the U.S. rose 7% to about 21.6 million short tons, with both domestic and export consumption reaching record levels.

Domestic consumption in 1986 was about 18 million tons, and over 3.7 million tons of paperstock were exported. This trend continued in January and February, with recycled paper and paperboard mills operating at "close to practical maximum capacity" while continuing to increase utilization of wastepaper, Edwards noted.

He said the upward momentum is likely to continue this year, which will "put pressure on the collection system to expand in order to meet increasing demand. The paper recycling industry will be challenged in 1987

more than ever before, and the challenge will be to maintain the balance between supply and demand," said Edwards.

For 1986, total collections of corrugated totaled 10.2 million tons, up 10.8% from 1985. The collection rate was about 45%, with the collection system expanded substantially last year to meet the rise in demand. Of the total collected, about 2 million tons were box plant clippings and 8.2 million tons were old corrugated containers (OCC).

Consumption of old newspapers for cellulosic insulation, molded egg cartons and cushioning materials for packaging may be higher than previous estimates, noted API. Total collections rose 4% to 3.9 million tons in 1986 from the previous year.

Mixed paper collections dropped 4.7% to 2.7 million tons last year, primarily due to shifts to old news and OCC by export customers because of the increasing amount of plastics, metals and other nonfibrous materials found in mixed papers.

Collections of high grades and pulp substitutes in 1986 rose 8.5% to 4.8 million tons, reflecting the rise in yield of clippings from converting facilities such as those making envelopes, business forms, and printed brochures. Also, mills were increasing their consumption of substitutes for higher-priced market pulp, noted Edwards.

**"OTHER USES" PACE NEWSPRINT.** Total newsprint consumption in the U.S. was up 3% in 1986 compared with a year earlier, the fourth consecutive annual increase, according to the API. The largest growth in end use, however, was not in daily newspapers but in other uses. While dailies consumed 2.3% more newsprint last year than in 1985, usage for purposes "other than daily newspapers" was 5.2% higher.

U.S. and Canadian newsprint shipments to the U.S. increased by only 1.7%, however, due largely to the fact that end users increased their inventories in 1985 and reduced them to an even greater extent in 1986, according to James L. Hutchison, API vice president-paper group.

Imports to the U.S. from overseas decreased 9.6% to 301,400 metric tons in 1986 compared with the prior year's 333,500 tons. The major suppliers were Sweden (134,700 tons) and Norway (80,400 tons). U.S. exports, however, rose 21% to 337,000 tons from 279,000 tons in 1985. This shift was attributed primarily to the sharp drop in the value of the U.S. dollar relative to the Swedish krona and Norweigan krone.

North American newsprint capacity shows relatively little change in the 1984 to 1988 period, with tonnage rising to just 15.6 million tons from 15.1 million tons. On the demand side, however, newsprint mills could experience some slippage in orders from newspapers if circulation drops as some suspect it might.

The increase in daily newspaper circulation over the past 26 years was attributed to the increase in the number of households as the nation experienced a large infusion of household-forming adults. However, the num-

*TABLE 1:* **U.S. wastepaper consumption and exports for 1985 and 1986 show growth trend which has continued in 1987.**

**1986 wastepaper data**
(short tons)

| | Consumption at U.S. paper and paperboard mills* | Exports | Total collected |
|---|---|---|---|
| News | 3,143,011 | 766,087 | 3,909,098 |
| Corrugated | 8,682,115 | 1,529,772 | 10,211,837 |
| Mixed | 2,028,129 | 693,697 | 2,721,826 |
| High grades | 4,034,488 | 759,205 | 4,793,693 |
| **Total** | **17,887,743** | **3,748,711** | **21,636,454** |

**1985 wastepaper data**

| | Consumption at U.S. paper and paperboard mills* | Exports | Total collected |
|---|---|---|---|
| News | 3,174,989 | 625,631 | 3,800,620 |
| Corrugated | 7,899,441 | 1,310,876 | 9,210,317 |
| Mixed | 1,901,502 | 879,825 | 2,781,327 |
| High grades | 3,874,123 | 469,594 | 4,343,717 |
| **Total** | **16,850,055** | **3,285,926** | **20,135,981** |

* Includes consumption at plants making molded pulp and insulation products. Source: American Paper Institute.

*TABLE 2:* **U.S. newsprint consumption activities for 1984-86 and U.S. and Canadian shipping activities in 1985-86.**

**U.S. consumption of newsprint**
(000 metric tons)

| | 1984 | 1985 | 1986 | % change 1986-85 |
|---|---|---|---|---|
| Daily newspapers | 8,532 | 8,725 | 8,926 | 2.3 |
| Other uses | 2,899 | 2,862 | 3,010 | 5.2 |
| **Total** | **11,431** | **11,587** | **11,936** | **3.0** |

**U.S. and Canadian shipments to major regions**

| | 1985 | 1986 | % change |
|---|---|---|---|
| North | 2,764 | 2,889 | 4.5 |
| South | 3,952 | 3,548 | −1.2 |
| West | 2,383 | 2,513 | 5.5 |

ber of people reaching household-forming age will be in a steady downward trend over the next decade, noted Hutchison.

**DOLLAR BOTTOMING OUT?** Although widely viewed as a "nonevent," the February meeting of leading finance ministers and central bank governors probably succeeded in helping stabilize the dollar around present levels, according to Dimitri Balatsos, director of global investment strategy for Kidder Peabody International Investments Ltd. This was mainly due to the fact that the meeting was well timed with "growing market perceptions that the dollar's slide has generally bottomed out."

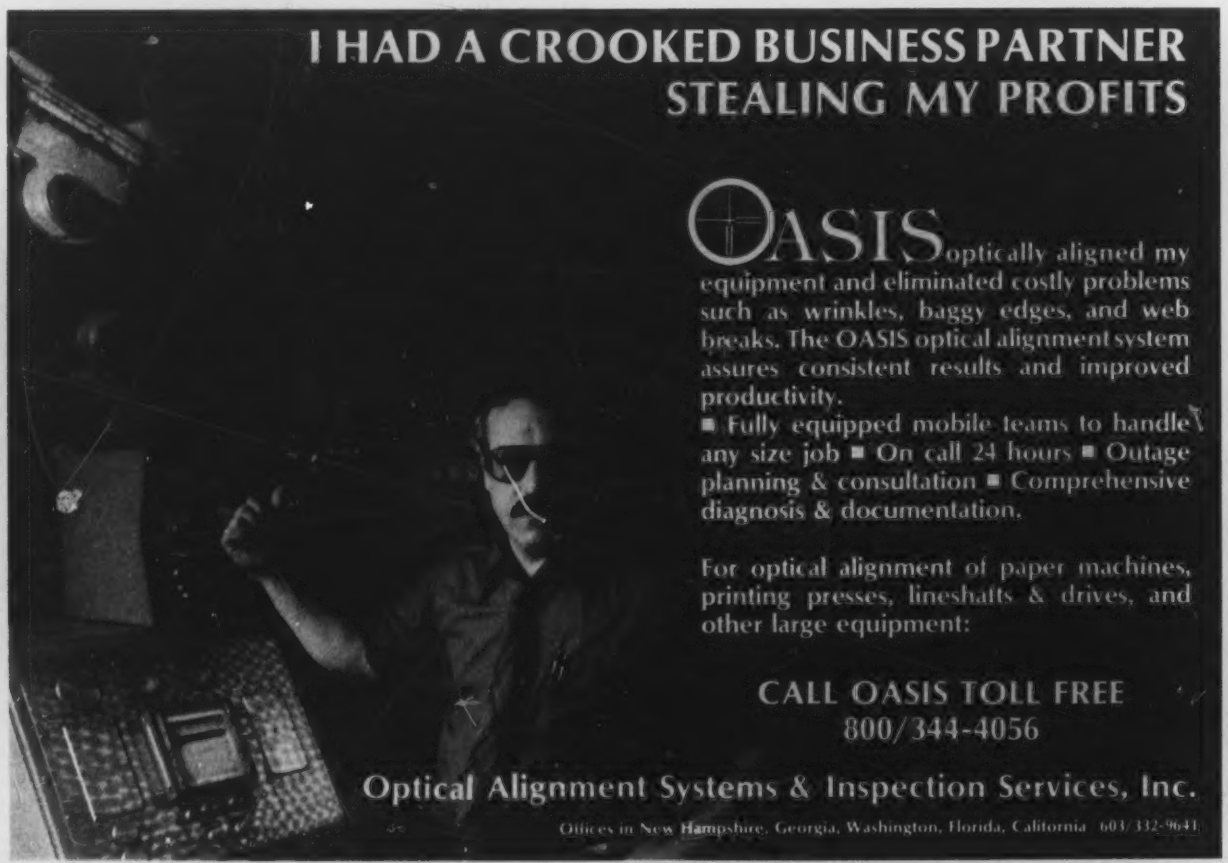
In addition, the outlook suggests that the U.S. economy will accelerate significantly later this year, while the West German economy is weakening. Large pools of surplus savings exist in Japan and Germany for export to the U.S., where assets appear cheap. As a result of this, Balatsos predicted a slight weakening of the yen to DM190 to 195 by next September and then a strengthening back to the current level of DM175 to 180 by March of 1988. The yen might weaken to ¥160 in relation to the dollar by this September however return to ¥140 next March. ■

## API names '86 Safety Award winners

The American Paper Institute presented awards to seven companies during its 110th annual Paper Week meeting in recognition of their outstanding safety records. The winners had the lowest accident and injury records over the past five years for their respective size classifications, based on OSHA statistics. In addition, their total incidence rate for 1986 must not have been higher than during the previous year, and the mills must not have experienced a fatality or permanent or total disability over the past five years.

In the area of primary operations the winners were: Weyerhaeuser Co., Plymouth, N.C.; Potlatch Corp., Lewiston, Idaho; Buckeye Cellulose Corp., C & S Div., Memphis, Tenn.; Buckeye Cellulose Corp., Flint River Plant, Oglethorpe, Ga.; and Procter & Gamble Co., Oxnard, Calif.

The winners in the area of converting operations were: Procter & Gamble Co., Cape Girardeau, Mo.; Procter & Gamble Co., Greenville, N.C.; Manville Forest Products Corp., Carton Plant, West Monroe, La.; Union Camp Corp., Sheet Finishing Dept., Franklin, Va.; along with Boise Cascade Corp., Pajco Products, Lowville, N.Y.



I HAD A CROOKED BUSINESS PARTNER
STEALING MY PROFITS
OASIS optically aligned my equipment and eliminated costly problems such as wrinkles, baggy edges, and web breaks. The OASIS optical alignment system assures consistent results and improved productivity.
■ Fully equipped mobile teams to handle any size job ■ On call 24 hours ■ Outage planning & consultation ■ Comprehensive diagnosis & documentation.
For optical alignment of paper machines, printing presses, lineshafts & drives, and other large equipment:
CALL OASIS TOLL FREE
800/344-4056
Optical Alignment Systems & Inspection Services, Inc.
Offices in New Hampshire, Georgia, Washington, Florida, California 603/332-9641